

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 04 JUL 2006

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Applicant's or agent's file reference <b>ACA 6328 P1-WO</b>	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. <b>PCT/EP2005/001991</b>	International filing date (day/month/year) <b>23.02.2005</b>	Priority date (day/month/year) <b>27.02.2004</b>	
International Patent Classification (IPC) or national classification and IPC <b>INV. C09J4/06 C08F4/54</b>			
Applicant <b>AKZO NOBEL N.V. et al.</b>			
1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of    sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).			
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I      Basis of the report <input type="checkbox"/> Box No. II     Priority <input type="checkbox"/> Box No. III    Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV    Lack of unity of invention <input checked="" type="checkbox"/> Box No. V     Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI    Certain documents cited <input type="checkbox"/> Box No. VII   Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII  Certain observations on the international application			
Date of submission of the demand  <b>05.08.2005</b>		Date of completion of this report  <b>30.06.2006</b>	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer  <b>Parry, J</b>  Telephone No. +31 70 340-1032	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2005/001991

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3(a) and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4(a))
  - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-9

as originally filed

**Claims, Numbers**

1-8

as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-8
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

This International Preliminary Report is issued at the discretion of the International Preliminary Examining Authority in accord with R. 66.4b PCT.

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The following documents (D1-D3) will be referred to (see the ISR for the relevant passages):

- D1: US 2002/058764 A1 (SONNENSCHNEIDER MARK F ET AL) 16 May 2002 (2002-05-16)
- D2: DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; SKVORTSEVICH, E. P. ET AL SKVORTSEVICH, E. P. ET AL: "The AIR3-2,2'- bipyridine system as an initiator of anionic polymerization" XP002328640 retrieved from STN Database accession no. 1977:518197
- D3: FLORJANCZYK, ZBIGNIEW ET AL FLORJANCZYK, ZBIGNIEW ET AL: "Free-radical initiating systems comprising organoaluminum compounds and organic electron -acceptors". MAKROMOLEKULARE CHEMIE , 186(11), 2255-68. XP008047205

1. The subject matter of claims 1-8 of the present application is not considered inventive for the following reasons: D1, which is considered to be the closest prior art, describes organoborane-amine adducts as initiators in acrylate polymerisation. The subject-matter of claim 1-8 differs in that organoaluminium is added. The technical effect of this feature appears to be to enhance the stability of the composition (p.2, l. 1-3 and 28-31) thereby inhibiting curing (p.3, l.9-14; p.9, table 1). Therefore, the objective problem can be formulated as to provide compositions that cure on demand. The solution proposed in claims 1-8 of the present application cannot be considered as involving an inventive step because feature 1 is disclosed in D2. D2 describes the use of (bipyridine)AIR3 as initiator in acrylate polymerisation. Apparently this reagent only slowly becomes active in the production of radicals required to initiate polymerisation, ie it has to be stored for a period of time before use. This is also supported by D3 which teaches that organoaluminiums are poor initiators for acrylate polymerisation when used without compounds such as quinines

(which form aluminium derivatives of quinines and alkyl radicals that initiate polymerisation) so that diluting, as in the present case, an active borane-based initiator with a less active aluminium analogue will obviously decrease the rate of polymerisation of the acrylate monomers. The skilled person would regard it as a normal option to combine the teachings of D2, or D3 with those of D1 in order to solve the problem of the present application. D1 already supplies the organoborane-amine complex so the skilled person need only find a document in addition to D1 associating the present technical effect with present feature 1, and not another document teaching of organoborane-amine complexes. As outlined above, D2 is such a document: it is obvious for the skilled person that adding a poor initiator will enhance stability.

**Re Item VIII**

**Certain observations on the international application**

The following objections are made under Art. 6 (PCT):

1. Claim 1: (i) the term "organoaluminium" is unclear as it means that an aluminium-carbon bond must be present, however, p.3, l.24-30, claims 2 and 5, and present example 10 suggest that compounds such as (RO)<sub>3</sub>Al are also intended to form part of the present invention. The claims must be clear in their own right. From the Römpp Chemical Lexicon (entry Aluminium-Organische Verbindungen, see translation "Übersetzungen" in the footnotes) it is clear that the skilled person reads an "organoaluminium" as possessing aluminium-carbon bond. Thus neither the trialkoxides of claim 5 nor the option of claim 2 where all six groups are alkoxy can depend on claim 1.

(ii) the expression "to inhibit curing..." describes a "result to be achieved" (PCT GL Ch.-III,4.7) - how would one know what amount would be necessary to effect this given the complex reactions that can take place with the other reagents present? Thus essential features are missing from this claim required to avoid trial and error experimentation.

2. Claims 6 and 7 (and 8 in part) are product claims which are defined by a process of preparation. It cannot be ascertained that these products were in fact prepared beforehand in this way.